

COLORADO RIVER RECOVERY PROGRAM
FY-2006-2007 PROPOSED SCOPE-OF-WORK for:
Smallmouth bass control in the middle Green River

Project No.: 123

Lead Agency: UDWR and USFWS

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Category:

- ☐ Ongoing project
☒ Ongoing-revised project
☐ Requested new project
☐ Unsolicited proposal

Expected Funding Sources:

- ☒ Annual funds
☐ Capital funds
☐ Other (explain)

I. Title of Proposal:

Smallmouth Bass Control in the Green River

II. Relationship to RIPRAP:

GENERAL RECOVERY PROGRAM SUPPORT ACTION PLAN

- III. Reduce negative impacts of nonnative fishes and sportfish management activities (nonnative and sportfish management).
- III.A. Reduce negative interactions between nonnative and endangered fishes.
- III.A.2. Identify and implement viable active control measures.

GREEN RIVER ACTION PLAN: MAINSTEM

- III. Reduce impacts of nonnative fishes and sportfish management activities (nonnative and sportfish management).
- III.A. Reduce negative impacts to endangered fishes from sportfish management activities.
- III.A.4. Develop and implement control programs for nonnative fishes in river reaches occupied by the endangered fishes to identify required levels of control. Each control activity will be evaluated for effectiveness, and then continued as needed.

III. Study Background/Rationale and Hypotheses:

The Upper Colorado River Endangered Fish Recovery Program has determined that control of nonnative fish in the upper Colorado River basin is essential to the recovery of the four endangered fish species: Colorado pikeminnow, razorback sucker, humpback chub, and bonytail. This determination has been documented specifically for humpback chub in Desolation/Gray canyons in Section 4.3.2 of the Humpback Chub (*Gila cypha*) Recovery Goals (USFWS 2002). Smallmouth bass abundance has dramatically increased in the Green River since 2000. This information resulted in a recommendation from the December 2003 Nonnative Fish Control Workshop (Grand Junction, CO) to attempt control of this species in the Green River.

IV. Study Goals, Objectives, End Product:

Goal: Control smallmouth bass populations in the Green River.

Objectives:

1. Calculate an annual population estimate of smallmouth bass in the Green River.
2. Remove smallmouth bass in the Green River from Echo Park (RM 344) to Swasey's Rapid (RM 132).
3. Determine efficiency of smallmouth bass removal efforts.

V. Study Area

The study area encompasses the Green River from Echo Park (RM 344) to Swasey's Rapid (RM 132). The USFWS will remove smallmouth bass from Echo Park (RM 344) to Split Mountain boat ramp (RM 318); total of 26 miles. UDWR – Vernal will remove smallmouth bass from Split Mountain boat ramp (RM 318) to Sand Wash (RM 215); total of 103 miles. UDWR – Moab will remove smallmouth bass from Sand Wash (RM 215) to Swasey's Rapid (RM 132); a total of 83 miles.

VI. Study Methods/Approach

Smallmouth bass will be removed primarily by electrofishing. Sampling crews will conduct removal activities in a manner that minimizes potential negative impacts to endangered fish as a result of electrofishing activities. This includes discontinuing electrofishing when elevated numbers of endangered fish are known to be present. Situations when this is likely to occur will be when Colorado pikeminnow are staging in tributary mouths or backwater habitats prior to spawning, when razorback sucker are on and near the spawning bar and following recent stocking of endangered fish. Results of 2004 removal efforts showed increases in catch rates later in the summer with each subsequent pass. Four electrofishing passes will be conducted beginning July or when water temps reach approximately 20 °C. Two electrofishing boats will simultaneously electrofish each shoreline of the river. Effort will be focused on shoreline habitat that is likely to contain smallmouth bass. All smallmouth bass will be marked and released on the first pass and examined for marks on the second and subsequent passes. Results of the first two passes will allow the determination of a smallmouth bass abundance estimate using the Lincoln-Peterson approach. The first two passes may also serve to identify smallmouth bass concentration areas. These areas will receive additional electrofishing effort in subsequent passes. Any endangered fish captured will be scanned for a PIT tag, tagged if needed, weighed (g), measured TL (mm), and released alive.

Nonnative removal and evaluation efforts, which include tagging and marking of endangered and target nonnative fishes, are also being conducted by other researchers and agencies in other reaches of the Green and Yampa Rivers. Therefore, sampling crews will examine all captured endangered and target nonnative fish for tags or marks and record pertinent information. This information will then be reported to principal investigators as appropriate and included in annual reporting.

VII. Task Description and Schedule

- Task 1. Four smallmouth bass collecting passes from Echo Park to Split Mountain boat ramp (USFWS CRFP – Vernal; August – September 2006-2007).
- Task 2. Four smallmouth bass collecting passes from Split Mountain boat ramp to Sand Wash (UDWR – Vernal; July – September 2006-2007).
- Task 3. Four smallmouth bass collecting passes from Sand Wash to Swasey's Rapid (UDWR – Moab; August – September 2006-2007)

Task 4. Data entry, analysis, and reporting – October/November 2006-2007

VIII. FY2006 Work

Deliverables/Due Dates

Recovery Program annual progress report: November 2006

Budget:

Task 1. Four smallmouth bass collecting passes from Echo Park to Split Mountain boat ramp (USFWS CRFP-Vernal). One mark and three removal passes.

Task 1

Labor	
GS-14 Project Leader (\$59.82/hr x 8 hrs/day x 10 days)	\$4,786
GS-11 Biologist (\$36.67/hr x 8 hrs/day x 5 days/trip x 4 trips) + (\$55.00/hr x 2 hrs OT/day x 5 days/trip x 4 trips)	\$8,067
GS-8 Fisheries Tech (\$28.29/hr x 8 hrs/day x 5 days/trip x 4 trips) + (\$42.44/hr x 2 hrs OT/day x 5 days/trip x 4 trips)	\$6,224
2 GS-5 Tech (\$20.56/hr x 8 hrs/day x 5 days/trip x 4 trips) + (\$30.84/hr x 2 hrs OT/day x 5 days/trip x 4 trips)	\$9,046
GS-9 Admin. Assist. (\$32.20/hr x 8 hrs/day x 10 days)	\$2,576

Subtotal	\$30,699
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Travel, Shuttle Drivers, Boat gas, Per Diem, Equipment, etc.	
(5 trucks/trip x 80 mi/truck x \$0.405/mi x 4 trips) Vernal to Eco Park	\$648
(5 trucks/trip x 70 mi/truck x \$0.405/mi x 4 trips) Eco Park to Split Mt Ramp	\$567
(1 truck/trip x 30 mi/truck x \$0.405/mi x 4 trips) Split Mt Ramp to Vernal	\$49
(5 trucks/trip x 25 mi/truck x \$0.405/mi x 4 trips) Split Mt Ramp to Vernal	\$162
Vehicle maintenance (oil chgs, tires, cleaning, etc.)	\$478

(12 gal gas/boat x 4 boats/trip x \$2.50/gal x 4 trips)	\$480
(2 qts motor boat oil/boat x 4 boats/trip x \$2.75/qt x 4 trips)	\$88
Shuttle Drivers (5 drivers/trip x \$100/driver x 4 trips)	\$2,000
Shuttle Drivers (1 driver/trip x \$10/driver x 4 trips) for trip organization	\$40
Per diem (8 people/day x \$25/person x 5 days/trip x 4 trips)	\$2,500
1 outboard motor	\$4,000
Maintenance and replacement of rafting gear, sampling nets, elelctrofishing gear, etc.	\$6,700
Subtotal	\$17,712
Task Total	\$48,411

Task 2. Four smallmouth bass collecting passes from Split Mountain boat ramp to Sand Wash (UDWR – Vernal). One mark and three removal passes. *Approximately \$24K from northern pike control project #109 was added to this task in FY2005 for additional smallmouth bass control effort in the middle Green River.*

	Work days	UDWR-Vernal Cost
Labor		
Technician (\$195/day)	270	52,650
Biologist (\$340/day)	90	30,600
Leader (\$438/day)	30	13,140
Subtotal		\$96,390
Travel		
2 trucks/trip x 75 mi/truck x \$0.41/mi + \$5/day rent	60	4,290
Per diem		
(6 people/day x \$15/person x 10 days/trip x 4 trips)		3,600
Subtotal		\$7,890
Equipment		
Matintenance of outboard motors, boats, sampling nets, electrofishing gear, outboard fuel and oil etc.		3,000
Task 2 Total		\$107,280

Task 3. Four smallmouth bass collecting passes from Sand Wash to Swasey's Rapid (UDWR – Moab). One mark and three removal passes.

	Work days	UDWR-Moab Cost
Labor		
Technician (\$195/day)	160	31,200
Biologist (\$340/day)	35	11,900
Leader (\$438/day)	10	4,380
Subtotal		\$47,480
Travel		
Moab to Sand Wash (4 trucks/trip x 150 mi/truck x \$0.41/mi + \$5/day rent x 4 trips)		1,064
Per diem		
6 people/day x \$30/person x 8 days/trip x 4 trips		5,760
Subtotal		\$6,824
Equipment		
Maintenance of outboard motors, rafts, sampling nets, electrofishing gear, outboard fuel and oil etc.		2,000
Task 3 Total		\$56,304

Task4. Data management and reporting

UDWR - Vernal			UDWR - Moab		USFWS		
	Work days	Cost	Work days	Cost		Work days	Cost
Data Entry							
Technician (\$195/day)	6	1,170	6	1,170			
Biologist (\$340/day)	2	680	2	680			
Leader (\$438/day)		0		0			
Report Prep		0		0			
Biologist (\$340/day)	6	2,040	6	2,040	Biologist (GS-11; \$36.67/hr x 8 hrs/day)	10	2,934
Leader (\$438/day)	2	876	2	876	Admin. Asst. (GS-9; \$32.20/hr x 8 hrs/day)	1	258
					Supplies (paper, computer disks, copies, etc.)		125
Task 4 Total		\$4,814	\$4,814		\$3,317		

FY 2006 Total

UDWR – Vernal	\$112,094
UDWR – Moab	\$61,118
USFWS – Vernal	\$51,728
Total	\$224,940

FY2007 Work

Deliverables/Due Dates

Recovery Program annual progress report: November 2006

Budget:

Task 1. Four smallmouth bass collecting passes from Echo Park to Split Mountain boat ramp (USFWS CRFP-Vernal). One mark and three removal passes.

Task 1

Labor	
GS-14 Project Leader (\$61.61/hr x 8 hrs/day x 10 days)	\$4,929
GS-11 Biologist (\$37.77/hr x 8 hrs/day x 5 days/trip x 4 trips) + (\$56.65/hr x 2 hrs OT/day x 5 days/trip x 4 trips)	\$8,309
GS-8 Fisheries Tech (\$29.14/hr x 8 hrs/day x 5 days/trip x 4 trips) + (\$43.71/hr x 2 hrs OT/day x 5 days/trip x 4 trips)	\$6,410
2 GS-5 Tech (\$21.18/hr x 8 hrs/day x 5 days/trip x 4 trips) + (\$31.77/hr x 2 hrs OT/day x 5 days/trip x 4 trips)	\$9,320
GS-9 Admin. Assist. (\$33.17/hr x 8 hrs/day x 10 days)	\$2,654

Subtotal	\$31,622
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Travel, Shuttle Drivers, Boat gas, Per Diem, Equipment, etc.	
(5 trucks/trip x 80 mi/truck x \$0.417/mi x 4 trips) Vernal to Eco Park	\$667
(5 trucks/trip x 70 mi/truck x \$0.417/mi x 4 trips) Eco Park to Split Mt Ramp	\$584
(1 truck/trip x 30 mi/truck x \$0.417/mi x 4 trips) Split Mt Ramp to Vernal	\$50
(5 trucks/trip x 25 mi/truck x \$0.417/mi x 4 trips) Split Mt Ramp to Vernal	\$167
Vehicle maintenance (oil chgs, tires, cleaning, etc.)	\$492
(12 gal gasl/boat x 4 boats/trip x \$2.58/gal x 4 trips)	\$495
(2 qts motor boat oil/boat x 4 boats/trip x \$2.83/qt x 4 trips)	\$91
Shuttle Drivers (5 drivers/trip x \$103/driver x 4 trips)	\$2,060
Shuttle Drivers (1 driver/trip x \$11/driver x 4 trips) for trip organization	\$44
Per diem (8 people/day x \$26/person x 5 days/trip x 4 trips)	\$4,160
1 outboard motor	\$2,500
Matintenance and replacement of rafting gear, sampling nets, elelctrofishing gear, etc.	\$6,700

Subtotal	\$18,010
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Task Total	\$49,632
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Task 2. Four smallmouth bass collecting passes from Split Mountain boat ramp to Sand Wash (UDWR – Vernal). One mark and three removal passes. *Approximately \$24K from northern pike control project #109 was added to this task for additional smallmouth bass control effort in the middle Green River.*

	Work days	UDWR-Vernal Cost
Labor		
Technician (\$201/day)	270	54,270
Biologist (\$350/day)	90	31,500
Leader (\$451/day)	30	13,530
Subtotal		\$99,300
Travel		
2 trucks/trip x 75 mi/truck x \$0.41/mi + \$5/day rent	60	4,290
Per diem (6 people/day x \$15/person x 10 days/trip x 4 trips)		3,600
Subtotal		\$7,890
Equipment		
Maintenance of outboard motors, boats, sampling nets, electrofishing gear, outboard fuel and oil etc.		3,000
Task 2 Total		\$110,190

Task 3. Four smallmouth bass collecting passes from Sand Wash to Swasey's Rapid (UDWR – Moab). One mark and three removal passes.

	Work days	UDWR-Moab Cost
Labor		
Technician (\$201/day)	160	32,160
Biologist (\$350/day)	35	12,250
Leader (\$451/day)	10	4,510
Subtotal		\$48,920
Travel		
Moab to Sand Wash (4 trucks/trip x 150 mi/truck x \$0.41/mi + \$5/day rent x 4 trips)		1,064
Per diem		
6 people/day x \$30/person x 8 days/trip x 4 trips		5,760
Subtotal		\$6,824
Equipment		
Maintenance of outboard motors, rafts, sampling nets, electrofishing gear, outboard fuel and oil etc.		2,000
Task 3 Total		\$57,744

Task 4. Data management and reporting

Task 4	UDWR - Vernal		UDWR - Moab		USFWS	
	Work days	Cost	Work days	Cost	Work days	Cost
Data Entry						
Tech (\$201/day)	6	1,206	6	1,206		
Biologist (\$350/day)	2	700	2	700		
Leader (\$451/day)		0		0		
Report Prep						
Biologist (\$340/day)	6	2,100	6	2,100	Biologist (GS-11; \$37.77/hr x 8 hrs/day)	15 4,532
Leader (\$438/day)	2	902	2	902	Project Leader (GS-14; \$61.61/hr x 8 hrs/day)	3 1479
					Admin. Asst. (GS-9; \$33.17x 8 hrs/day)	265
					Supplies (paper, computer disks, copies, etc.)	129
Task 4 Total		4,908		4,908		\$4,926

FY 2007 Total

UDWR – Vernal	\$115,098
UDWR – Moab	\$62,652
USFWS – Vernal	\$54,558
Total	\$232,308

FY 2007 Synthesis Report

Task 4. Data Entry/Analysis

Labor

Biologist (\$347/day) 5 1,735

Technician (\$198/day) 2 396

Supplies 200

Task subtotal 2,331

Task 5. Synthesis Report

Labor

Project Leader (\$446/day)	5	2,230
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Biologist (\$347/day)	15	5,205
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Supplies		200
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Travel		1,000
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Task subtotal		7,635
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Synthesis Report Total		\$9,966
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IX. Program Budget Summary

	UDWR-Vernal	UDWR-Moab	USFWS	Total
FY 2006	\$112,094	\$61,118	\$51,728	\$224,940
FY 2007	\$115,098	\$62,652	\$54,558	\$232,308

Note: FY 2007 Total = \$242,274 which includes Synthesis Report

X. Reviewers

XI. References

Chart, T.E., and L. Lentsch. 2000. Reproduction and recruitment of *Gila* spp. and Colorado pikeminnow (*Ptychocheilus lucius*) in the middle Green River; 1992-1996. Final Report on Upper Colorado River Endangered Fish Recovery Program Project #39. Publication No. 00-18. Utah Division of Wildlife Resources, Salt Lake City, Utah.

Jackson, J.A., and P.V. Badame. 2002. Centrarchid and channel catfish control in the middle and lower Green River; 1997 and 1998. Final Report on Upper Colorado River Endangered Fish Recovery Program Project #59. Publication No. 02-24. Utah Division of Wildlife Resources, Salt Lake City, Utah.

U.S. Fish and Wildlife Service. 2002. Humpback chub (*Gila cypha*) recovery goals: amendment and supplement to the humpback chub recovery plan. U.S. Fish and Wildlife Service, Mountain-Prairie Region (6), Denver, Colorado.